Secondary Mathematics
AP Calculus

*Prerequisite: Pre-Calculus Course **or** Teacher Recommendation*

Course Description:
An Idaho Course in AP Calculus consists of a full year of academic work in calculus and related topics. This should be equivalent to a one semester entry-level calculus course in most colleges or universities. The topics and concepts that should be included in any calculus course, whether AB or BC, can be found in the *Advanced Placement Course Description for Calculus.* Updated annually, this publication provides a descriptive outline for the course while detailing the content and skills students need to demonstrate. This publication also provides a description of the Advanced Placement examination, sample multiple-choice questions with an answer key, and sample free-response questions. Using the *Advanced Placement Course Description for Calculus* as a guide, the teacher is responsible for expanding the course to include enrichment, applications and special projects. The *Advanced Placement Teacher's Guide in Calculus* is a publication that teachers may find very helpful. It contains syllabi developed by high school teachers currently teaching AP Calculus, lesson plans, current teaching techniques, and lists of recommended teaching resources.

Copies of the *Advanced Placement Course Description for Calculus* and the *Advanced Placement Teacher's Guide in Calculus* for the current year may be obtained by writing to:

College Board Publications
Dept. CMC0400 A B C D
Two College Way
Forrester Center, WV 25438

Materials may be purchased online at www.collegeboard.com in the College Board Online Store. Additional information about the course, previous AP Tests and review problems, and any supplemental materials may be reviewed at http://apcentral.collegeboard.com.

Below is an abbreviated version of the course outline from the College Board AP Calculus website.

I. Functions, Graphs, and Limits

- Analysis of graphs
- Limits of functions (including one-sided limits)
- Asymptotic and unbounded behavior
- Continuity as a property of functions
- ∗ Parametric, polar, and vector functions

II. Derivatives

- Concept of the derivative
- Derivative at a point
- Derivative as a function
- Second derivatives
- Applications of derivatives
- Computation of Derivatives

III. Integrals

- Interpretations and properties of definite integrals
- Applications of integrals
- Fundamental Theorem of Calculus
- Techniques of antidifferentiation
- Applications of antidifferentiation
- Numerical approximations to definite integrals

∗IV. Polynomial

- ∗ Concept of series
- ∗ Series of constants
- ∗ Taylor series

Note: The topic outline for Calculus BC includes all of the topics for Calculus AB. Additional topics are indicated with an asterisk (∗).